

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
18 December 2003 (18.12.2003)

PCT

(10) International Publication Number
WO 03/104606 A1(51) International Patent Classification⁷: **E21B 17/02,**
47/01Karim [CA/CA]; 75 Coral Springs Blvd NE, Calgary,
Alberta T3J 3J4 (CA).

(21) International Application Number: PCT/CA03/00844

(74) Agent: **WOODLEY, John, H.**; Sim & McBurney, 330
University Avenue, 6th Floor, Toronto, Ontario M5G 1R7
(CA).

(22) International Filing Date: 5 June 2003 (05.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/164,266 5 June 2002 (05.06.2002) US(63) Related by continuation (CON) or continuation-in-part
(CIP) to earlier application:US 10/164,266 (CIP)
Filed on 5 June 2002 (05.06.2002)(71) Applicant (for all designated States except US): **RYAN
ENERGY TECHNOLOGIES** [CA/CA]; 2719 - 61st Av-
enue SE, Calgary, Alberta T2C 4X3 (CA).

(72) Inventors; and

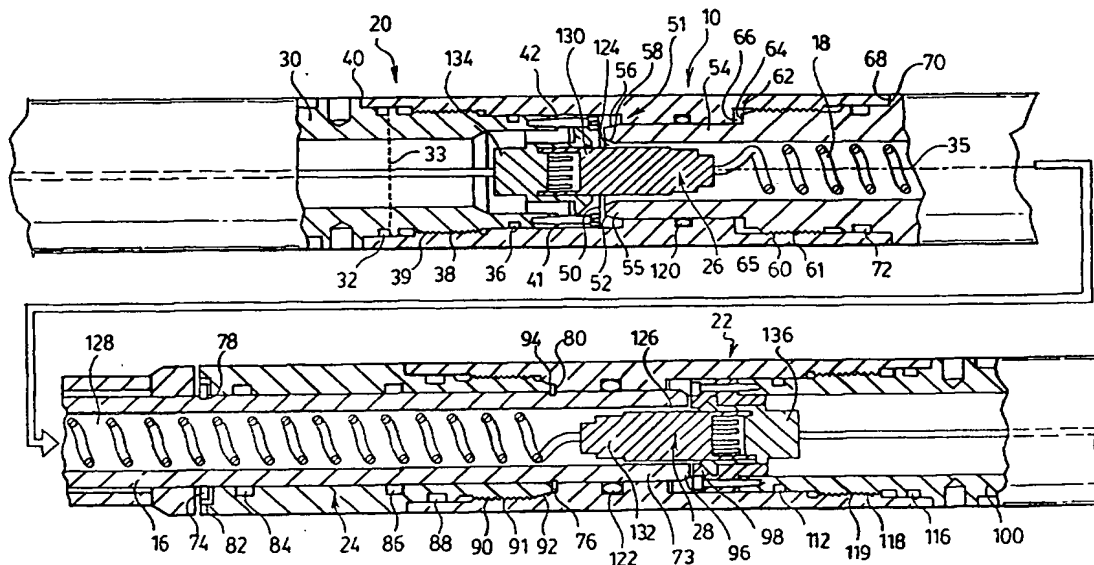
(75) Inventors/Applicants (for US only): **GURJAR, Rishi**
[CA/CA]; 3604 113 Street, Edmonton, Alberta T6J 1K9
(CA). **SUTHERLAND, Michael, T.** [CA/CA]; 520, 3318
19th Avenue SW, Calgary, Alberta T3E 6T3 (CA). **KANJI,**(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,
SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: TOOL MODULE CONNECTOR FOR USE IN DIRECTIONAL DRILLING



(57) Abstract: A tool module interconnect (10) for interconnecting to adjoining modules for insertion in a drill string features a system which permits making the electrical interconnection before assembly of the mechanical connections to interconnect the tool modules together. The interconnect comprises a hollow interconnect body (18) open at both ends. A wire harness (18) is provided in the hollow body with terminal end connectors (26, 28) accessible from the respective open end of the interconnect body. The interconnect is adapted for attachment to adjoining modules, where at least one end has a rotatable threaded sleeve (24) for connection to a tool module by a threaded collar.

WO 03/104606 A1